Fleas from Windham County, Vermont (Siphonaptera)

Roger E. Quackenbush
Biology Department
Bethlehem Central High School
Delmar, New York 12054

Received for Publication October 7, 1970

Abstract: Twelve species of fleas, representing 4 families, were collected from small mammals at Grout Pond, Windham County, Vermont during the summer of 1969. Species are listed with hosts, and number of males and females collected. No new records for Vermont are reported.

During the summer of 1969, small mammals were trapped at Grout Pond, Windham County, Vermont, to collect fleas. The elevation of Grout Pond is approximately 2,300 feet, and would be considered an intermediate height in Vermont. Surrounding the pond is a thick forest consisting of balsam fir, spruce, beech, birch, and maple.

All mammals were trapped in either regular mouse or rat snap traps baited with peanut butter. Twenty-five traps were set out just before dusk at places most likely to catch animals (under trees where evidence of feeding was observed, openings in ground from runways or burrows, under fallen trees, and in runways through grass). The traps were visited between 7:00–8:00 A.M. If there was no evidence of activity, the traps were moved. If some of the traps were snapped, or if an animal was caught, the traps were reset and visited every three hours during the day. Trapped animals were placed in glass jars to which an ether-soaked tissue was added. Most fleas came to the surface of the fur and died. They were removed with forceps, and transferred to 70% alcohol. The dead animal was then combed for any fleas still present.

Since many fleas are more closely associated with a certain type of nest, rather than the animal itself, nests of the red squirrel, meadow mouse, and deermouse were examined. The nesting material was teased apart after being placed in a white enamel pan eight inches deep. Fleas were easily transferred to 70% alcohol by the use of a dissecting needle dipped in alcohol. All fleas were later mounted on microscope slides according to the technique of Holland (1949).

A total of 151 fleas, representing 4 families, and 12 species was collected. No species was found that had not already been reported from Vermont.

Acknowledgments: Appreciation is expressed to: Dr. Allen H. Benton, State University College, Fredonia, New York, who has been most helpful in answering many questions through the years, and who has kindly read and commented on the manuscript; Kenneth Mosher, a former student of mine, who spent many hours helping me trap small mammals.

Family Pulicidae

Ctenocephalides felis felis (Bouché)
August 15, ex dog (*Canis familiaris*), 3 ♂, 2 ♀.

Although called the cat flea, it is the flea common on dogs as well as cats in the northeast.

Family Hystrichopsyllidae

Hystrichopsylla tahavuana Jordan
August 8, ex meadow mouse (*Microtus pennsylvanicus*), 1 ♂.

This flea is not often collected, and is usually collected from moles. Fuller (1943) has only one record of a single ♀ from New Hampshire, while Osgood (1964) lists one ♂ and one ♀ from Vermont.

Stenoponia americana (Baker)
August 6, ex meadow mouse; 1 ♂, 2 ♀.

This flea is associated with low elevations, so this record might represent the upper limit of this species. It does not appear to be host-specific, and can be found on many small mammals.

Ctenophthalmus pseudagyrtes pseudagyrtes Baker
July 12, ex short-tailed shrew (*Blarina brevicauda*), 1 ♀; July 21, ex short-tailed shrew, 1 ♀, and ex meadow mouse, 1 ♀; July 23, ex northeastern chipmunk (*Tamias striatus*), 1 ♂; August 6, ex meadow mouse, 2 ♂; August 8, ex meadow mouse, 3 ♀.

Usually considered a non-specific flea, but in a survey of the literature, and unpublished collections (Benton and Kelly, 1969), moles and deermice are suspected to be the primary and secondary hosts respectively. This species, along with *Orchopeas leucopus*, usually represents the largest number of specimens in collections made in the northeast. Perhaps the small number collected in this study is due to the elevation, and may represent the upper limit of the species. It is well known that host alone does not determine where a flea may be found. This emphasizes the importance of studying the ecology of flea distribution as collections are made.

Doratopsylla blarinae Fox
July 18, ex short-tailed shrew, 3 ♂, 3 ♀.

Host-specific to the short-tailed shrew. Only rarely is it found on another mammal.

Family Ceratophyllidae

Megabothris acerbus (Jordan)
July 23, ex northeastern chipmunk, 1 ♂, 1 ♀.

Host-specific to the chipmunk. Osgood (1964) reports this flea from the red squirrel, the red-backed mouse, and the deermouse. These hosts should be considered accidental for this flea.

Megabothris asio asio (Baker)
August 7, ex meadow mouse, 1 ♀.

Considered a nest flea of the meadow mouse, it is rarely taken from the host proper. This particular specimen had a very deep sinus in sternite VII, which is an extreme variation (Benton, 1969, per. com.).

Megabothris quirini (Rothschild)
July 29, ex red-backed mouse (*Clethrionomys gapperi*), 1 ♀; July 31, ex deermouse (*Peromyscus leucopus*), 2 ♀; August 8, ex meadow mouse, 1 ♂; August 15, ex red-backed mouse, 1 ♀.

This flea has been recorded 9 times from New England: six from Vermont (Osgood, 1964), two from New Hampshire (Fuller, 1943), and one from Maine (Fox, 1940). Benton and Cerwonka (1960) believe its rarity indicates it is a nest flea. Also they associate this flea with the red-backed mouse. The flea has been reported from many small mammals ecologically associated with the red-backed mouse.

Monopsyllus vison (Baker)
July 19, ex red squirrel (*Tamiasciurus hudsonicus*), 5 ♂, 4 ♀; July 23, ex northeastern chipmunk, 1 ♂; July 26, ex red squirrel, 2 ♀; August 3, ex red squirrel, 3 ♂, 3 ♀.

Although this flea is host-specific to the red squirrel, it was not found in either of two red squirrel nests examined.

Orchopeas caedens durus (Jordan)
July 9, ex nest of red squirrel, 13 ♂, 7 ♀; July 19, ex red squirrel, 2 ♀; August 3, ex red squirrel, 2 ♂, 2 ♀; August 15, ex nest of red squirrel, 9 ♂, 14 ♀.

This flea is host-specific to the red squirrel, but is not found throughout the range of the animal. In New York State it has been collected only in the Adirondack Mountains and the Tug Hill Plateau. Elsewhere in New York it is replaced by *Orchopeas howardii*. This represents the largest published collection of this flea in Vermont, and emphasizes the need of examining nests. The two nests examined were crawling with this flea, and the collection was a small sample of the actual number present.

Orchopeas leucopus (Baker)
July 9, ex deermouse, 2 ♂, 4 ♀; July 12, ex deermouse, 6 ♂, 5 ♀; July 21, ex deermouse, 1 ♂, 3 ♀; July 22, ex deermouse, 5 ♂, 5 ♀; July 31, ex deer-

mouse, 2 ♂, 2 ♀; August 2, ex deermouse, 4 ♂, 4 ♀; August 13, ex deermouse, 2 ♂.

It is host-specific to the genus *Peromyscus* (deermice), but can be found on its predators, and ecologically associated animals. An abundant flea.

Family Leptopsyllidae

Peromyscopsylla catatina (Jordan)

July 27, ex red-backed mouse, 1 ♂; August 11, ex red-backed mouse, 1 ♀; August 14, ex red-backed mouse, 4 ♀; August 15, ex red-backed mouse, 1 ♀.

This flea is thought to be host-specific to the red-backed mouse. While other small mammals may serve as the host for this flea, it is never found outside the range of the red-backed mouse.

Literature Cited

BENTON, ALLEN H. AND ROBERT H. CERWONKA. 1960. Host relationships of some eastern Siphonaptera. American Midl. Nat. **63:** 383–391.

BENTON, ALLEN H. AND DANNY L. KELLY. 1969. Notes on the biology of *Ctenophthalmus p. pseudagyrtes* Baker in the northeast (Siphonaptera: Hystrichopsyllidae). J. N. Y. Entomol. Soc. **77:** 70–74.

FOX, IRVING. 1940. Fleas of eastern United States. Iowa State College Press. 191 pp.

FULLER, H. S. 1943. Fleas of New England. J. N. Y. Entomol. Soc. **51:** 1–12.

HOLLAND, GEORGE P. 1949. The Siphonaptera of Canada. Canada Dept. of Agric., Tech. Bull. **70:** 306 pp.

OSGOOD, FREDERICK L., JR. 1964. Fleas of Vermont. J. N. Y. Entomol. Soc. **72:** 29–33.